REMARKS

By this amendment, claims 1 - 20 are currently pending in the application. By this amendment, claims 1, 11, 12 and 16 are amended, and claims 17-20 are added for the Examiner's consideration. The above amendments and added claims do not add new matter to the application and are fully supported by the specification. For example, support for the added claims is provided in Figures 1 and 2, and at pages 7-9 of the specification. The added claims correspond to the elected Species of Figures 1 and 2. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Allowed Claims

Applicants appreciate the indication that claim 12 contains allowable subject matter. Claim 12 is amended to include the features of base claim 1 and any intervening claim. Claim 12 should thus be considered allowed. Applicants submit that all of the remaining claims are in condition for allowance for the following reasons.

Information Disclosure Statement

Attached hereto is an English-language translation of the reference NR 226105. As to EP 0 543 947 B1, EP 0 155 380 B1, DE 27 57 314, DE 1 921 566, and AT 226105, all cited in the form PTO-1449 dated February 18, 2005, Applicants note that these references are discussed in detail in the background of the invention. This discussion should satisfy the Examiner's request. With this said, if the Examiner still requires such translations, the Applicant will provide such translations.

Objection to Specification

The specification has been objected to based on formalities. The specification has been amended in accordance with the Examiner's suggestion to

overcome the Examiner's objection. This objection should now be withdrawn.

The specification has also been amended to comport with U.S. patent practice by adding titles.

35 U.S.C. §112 Rejection

Claims 11 and 16 were rejected under 35 U.S.C. §112, 2nd paragraph. This rejection is respectfully traversed.

Claim 11 is amended pursuant to the suggestion of the Examiner. As to claim 16, Applicants submit that this is a dependent claim. Accordingly, Applicants respectfully request that the rejection over claims 11 and 16 be withdrawn.

35 U.S.C. §103 Rejections

Claims 1-4, 7, 13 and 16 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 6,299,512 to Costa et al. in view of U.S. Patent No. 2,162,279 to Herchenrider. Claims 1, 2, 4, 5, 7, 9, 11, 13 and 16 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 2,586,848 to Miller in view of Costa. These rejections are respectfully traversed.

Rejection of Claims 1-4, 7, 13 and 16

The Examiner is of the opinion that Costa shows all of the features of claim 1, except for the activating device having multiplicity of activating regions triggered in such a way that various regions of the abrasive are alternately activated independent of the oscillating sanding movement. The Examiner is of the opinion, though, that Herchenrider shows these features, and in particular, that Herchenrider discloses that a roller (27) pressing the abrasive against the workpiece has a multiplicity of activating regions (29 or 31) and that the separate regions allow the abrasive to form to the uneven or irregular areas on the surface being ground. The Examiner is thus of the opinion that it would have been obvious to one of ordinary skill in the art to replace the lower pressure roller of

Costa with that of Herchenrider to achieve the claimed invention.

The claimed invention is directed to a sanding machine. In non-limiting exemplary implementations of the invention, a sanding machine includes a retaining device for creating oscillating sanding movement and an activating device for creating reciprocating movement. The activating device is moved independently of the oscillating sanding movement. The superimposed movements, not synchronized with one another, of the retaining device (i.e., oscillating sanding movement) and the activating device (i.e., reciprocating movement) ensure that a regular sanding pattern, that would result from oscillating sanding movement alone, is eliminated. In this manner, the resulting sanding quality can be considerably improved. In pertinent part, claim 1 recites,

> ... an activating device having a multiplicity of activating regions triggered in such a way that various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement.

However, the combination of features of the Costa and Herchenrider references, as combined, do not show various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement.

Costa discloses a belt sander with moveable sanding head 20. The sanding head 20 comprises an endless sanding belt 32 entrained around an upper tension roller 22 and a lower contact roller 24 (col. 3, lines 53-54). The belt 32 is driven around the rollers 22, 24 by a motor 44 that drives the contact roller 24. A pair of spaced-apart and parallel eccentric shafts 38A and 38B and a second motor 50 are provided to impart translational orbital movement to the sanding head 20 (col. 3, lines 60-63). Thus, the sanding belt 32 undergoes two simultaneous superimposed movements: (i) rotation of the belt around the rollers 22 and 24, and (ii) translational orbital movement due to the oscillation of the

sanding head as a whole. Costa does not, however, disclose an activating device having a multiplicity of activating regions triggered in such a way that various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement, as recited in claim 1. Instead, Costa only discloses that the belt sanding machine provides simultaneous superimposed movements comprising rotation of the sanding belt around the tension roller and contact roller, and translational orbital movement of the sanding belt due to movement of the sanding head as a unit (col. 4, lines 55-58). These movements, however, are directly coupled to one another due to the fact that the contact roller is driven both rotationally and translationally to provide both movements.

Herchenrider does not cure the above-noted deficiencies of Costa with respect to the claimed invention. Herchenrider discloses an apparatus for grinding and polishing, comprising a sanding belt 24, presser roll 24, and billy roll 16. The presser roll 28 has blocks 29 (or 31) that provide pressure upon the belt 24 to resist any tendency for the abrasive grains on the belt 24 to recede from the work 15 under grinding pressure. Herchenrider does not, however, disclose an activating device having a multiplicity of activating regions triggered in such a way that various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement, as recited in claim 1. In fact, Herchenrider does not even disclose an oscillating sanding movement. Therefore, Herchenrider cannot disclose an activating device that acts independently of an oscillating sanding movement.

Moreover, replacement of the contact roller 24 of Costa with the presser roller 26 of Herchenrider, as proposed by the Examiner, would not result in an activating device having a multiplicity of activating regions triggered in such a way that various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement, as recited in claim 1. This is because in Costa the contact roller 24 is rotating in constant relation to the sanding belt 32, so that at each contact position a

constantly defined portion of the surface is contacted. And the same contact roller 24 is driven, as part of the sanding head 20 as a unit, to perform the oscillating sanding movement. Since the contact roller is driven to perform both the rotational and translational movement of the belt, the activation of any region of the contact roller 24 (regardless of whether its surface is smooth or has raised portions) is directly coupled to the oscillating sanding movement. In other words, a contact roller 24 with raised blocks would still be directly coupled to the abrasive such that the blocks of the contact roller result in only a part of the abrasive pressed onto the workpiece; but, due to the directly coupled movement, the selection of activated parts depends directly on the oscillating sanding movement of the contact roller 24 itself. Therefore, the applied references, alone or in combination do not teach or suggest each and every feature of independent claim 1.

Furthermore, the applied references do not teach or suggest many of the features of the dependent claims. For example, no proper combination of the applied references teaches or suggests that the activating device can be moved transversely to a feed direction of the workpiece to be sanded, as recited in claim 3. To the contrary, neither of the rollers of Costa and Herchenrider can be triggered such that various regions of the abrasive are alternately activated independently of the oscillating sanding movement transversely to a feed direction of the workpiece to be sanded. In fact, as should be understood, since these are rollers oriented in a same direction of the workpiece to be sanded, such a configuration as recited in the claimed invention is not possible by these references.

As to claim 16, it follows that the combination of references, as applied by the Examiner, cannot perform the method steps of the claimed invention. For example, as described above, the combination of references cannot perform alternate activation of various activating regions of the abrasive independently of the oscillating sanding movement by pressing the activating regions onto the workpiece.

Accordingly, Applicants respectfully request that the rejection over claims 1-4, 7, 13 and 16 be withdrawn.

Rejection of Claims 1, 2, 4, 5, 7, 9, 11, 13 and 16

Applicants submit that no proper combination of these references teaches or suggests various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement.

By way of explanation, Miller shows several different embodiments of an activating platen used with a conventional type belt sanding apparatus. The belt sanding apparatus performs two separate motions, one is the motion of the sanding belt relative to the workpiece, and the other is the change of various regions of the abrasive alternately pressed onto the workpiece. However, Miller does not teach or suggest various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement, as recited in claim 1. In fact, Miller does not even disclose an oscillating sanding movement. Therefore, Miller cannot disclose an activating device that acts independently of an oscillating sanding movement.

Costa does not cure the above-noted deficiencies of Miller with respect to the claimed invention. Costa, as described above, does not teach or suggest various regions of the abrasive are alternately pressed onto a workpiece by the activating regions independently of the oscillating sanding movement. Therefore, the applied references, alone or in combination, do not teach or suggest every feature of claim 1.

Moreover, even assuming *arguendo* that the applied references do teach or suggest every feature of the claimed invention, which Applicants do not concede, the combination proposed by the Examiner would not have been obviousness to the skilled artisan because there is no reasonable expectation of success. In Costa, the sanding occurs at the bottom of the lower contact roller 24. In Miller, the sanding occurs at the platen P-2 disposed at an intermediate

portion of the belt between the upper and lower rollers. When combining Miller and Costa, because Costa's contact roller 24 could not be exchanged for the platen P-2 without destroying the operability of the Costa apparatus, the skilled artisan would arrange the platen of Miller in the area of the sanding belt between the upper tension roller and the contact roller. However, this location for the platen would have no effect on the sanding of the workpiece because the sanding belt contact the workpiece adjacent the lowest part of the contact roller.

Furthermore, one could not simply provide the abrasive belt of Miller with the oscillating drive means of Costa, as asserted by the Examiner. This is because the oscillating drive means drives the entire sanding head 20 of Costa, including the upper tension roller 22, the lower contact roller 24, and the belt 32. The oscillation motion results in translational movement of the lowermost point of the contact roller 24 in the plane where the belt 32 contacts the workpiece WP. Making such a modification to Miller would result in the same oscillation of upper roller 121, lower roller 122, and belt B-2 (FIGS. 8 and 9). However, such a modification would not provide oscillating translation motion in the plane where the belt B-2 contacts the workpiece W-2, but, instead, would cause it in a plane that is substantially perpendicular thereto. Such movement would be detrimental for at least two reasons. First, it would repeatedly bring the belt B-2 into and out of contact with the workpiece W-2, thereby increasing sanding time. Secondly, it would repeatedly strain the belt against the platen P-2 and/or the workpiece, and possibly interfere with the platen drive mechanism 136 and 137, thereby increasing wear (i.e., decreasing the useful life) of the belt. Therefore, for at least the above-noted reasons, there is no reasonable expectation of success of combining Miller and Costa as proposed by the Examiner.

Moreover, Miller and Costa, alone or in combination, do not teach or suggest many of the features of the dependent claims. For example, no proper combination of Miller and Costa teaches or suggests wherein the abrasive is mounted on a retaining device and the retaining device is mounted with the oscillation drive means on a sanding machine frame in order to set the retaining

device, relative to a sanding machine frame, in a sanding movement oscillating parallel to a sanding plane, which is defined by a sanding surface of the abrasive, as recited in claim 9. To the contrary, as described above, modifying Miller by adding the oscillating drive means of Costa would necessarily result in oscillating movement that is perpendicular, not parallel, to the sanding plane defined by the sanding surface of the abrasive.

Furthermore, no proper combination of Miller and Costa teaches or suggests that the activating device is coupled to the sanding machine frame, as recited in claim 9. Even assuming *arguendo* that the proposed combination of Miller and Costa is proper, which Applicants do not concede, there is absolutely no teaching or suggestion that the platen P-2 would be coupled to the machine frame of Costa. To the contrary, Miller explicitly shows that the platen P-2 and associated drive mechanism (M-2 and 135-137) are not attached to any other part of the apparatus.

Moreover, Applicants disagree with the Examiner's assertion that the activating device would inherently be coupled to the frame, as recited in claim 9. Applicants note the guidance provided by MPEP §2112 on the subject of inherency:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. ... To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

Applicants submit that an activating device, such as Miller's platen and associated drive mechanism, is not necessarily coupled to a machine frame, and that, instead, the Examiner is improperly relying on probabilities or possibilities.

For example, the platen and drive mechanism could be coupled to a floor, and the frame could be a separate system that is coupled to a ceiling. Therefore, no proper combination of Miller and Costa teaches or suggests all of the features of claim 9.

Accordingly, Applicants respectfully request that the rejection over claims 1, 2, 4, 5, 7, 9, 11, 13 and 16 be withdrawn.

Rejoinder

Applicants respectfully submit that claim 1 is an allowable generic claim. Accordingly, rejoinder of claims 6, 8, 10, 14 and 15 is respectfully submitted as being proper.

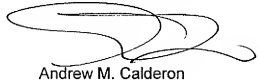
Added Claims

Claims 17-20 are added for the Examiner's consideration. The added claims correspond to the elected Species of Figures 1 and 2. Applicants submit that none of the applied references show, for example, a retaining device mounted to a frame by at least one displaceable eccentric shaft for setting an abrasive in an oscillating sanding movement with respect to a workpiece.

CONCLUSION

Applicants appreciate the indication of allowable subject matter; however, in view of the foregoing amendments and remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 19-0089.

Respectfully submitted,
Jurgen HEESEMANN



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